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34.

A method of supplying to the central nervous system of a patient a peptide that binds an opioid receptor or that interferes with binding of substance P to its receptor, comprising:

(a) obtaining allogenic muscle cells from the patient and preparing an in vitro culture;

(b) transducing the culture of (a) with DNA encoding the peptide, such that the myogenic cells express the peptide, then

(c) introducing the transduced myogenic cells as a suspension to a muscle from the patient, the muscle selected from the group consisting of a paraspinal muscle, levator scapulae muscle, muscles between laminae IV and V of the spinal cord and neck muscle, so that the peptide is produced in proximity to the spinal cord of the patient.

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The method of claim 34, wherein step (a) comprises the mechanical stimulation of the patient's skeletal muscle tissue to produce a reservoir of satellite myoblast cells prior to removal of the satellite myoblast cells for in vitro culture.

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The method of claim 35, wherein the mechanical stimulation is carried out by numerous needle probings or by sonication.

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The method of claim 35, wherein the satellite cells are allowed to develop for about 3 days after mechanical stimulation and before their harvest.

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The method of claim 34, wherein more than 1 billion cells are cultured for administration into the patient.

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The method of claim 34, wherein step (c) comprises injecting the transduced myogenic cells diagonally through muscle fibers.

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40. The method of claim 34, wherein large chondroitin-6-sulfate proteoglycan is added to the suspension of cells prior to administering the cells to the patient.

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41. The method of claim 40, wherein large chondroitin-6-sulfate proteoglycan is added to a final concentration of between about 5 micromolar to about 5 millimolar.

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42. The method of claim 40, wherein insulin is added to the suspension of cells prior to administering the cells to the patient.

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43. A method of supplying to the central nervous system of a patient a peptide that binds an opioid receptor or that interferes with binding of substance P to its receptor, comprising:

(a) obtaining allogenic muscle cells from the patient and preparing an in vitro culture;

(b) transducing the culture of (a) with DNA encoding the peptide, such that the myogenic cells express the peptide, then

(c) introducing at least 1 billion cells from (b) as a suspension into a patient muscle or into a region that contains fat cells.

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44. The method of claim 43, wherein step (a) comprises the mechanical stimulation of the patient's skeletal muscle tissue to produce a reservoir of satellite myoblast cells prior to removal of the satellite myoblast cells for in vitro culture.

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45. The method of claim 44, wherein the mechanical stimulation is carried out by numerous needle probings or by sonication.

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46. The method of claim 44, wherein the satellite cells are allowed to develop for about 3 days after mechanical stimulation and before their harvest.

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47. The method of claim 43, wherein about 10 billion progeny myoblast cells are cultured for administration into the patient.

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48. The method of claim 43, wherein step (c) comprises injecting the transduced myogenic cells diagonally through muscle fibers.

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49. The method of claim 43, wherein large chondroitin-6-sulfate proteoglycan is added to the suspension of cells prior to administering the cells to the patient.

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50. The method of claim 49, wherein large chondroitin-6-sulfate proteoglycan is added to a final concentration of between about 5 micromolar to about 5 millimolar.

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51. The method of claim 49, wherein insulin is added to the suspension of cells prior to administering the cells to the patient.

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52. The method of claim 43, wherein the cells are introduced into a region that contains fat cells.

REMARKS

This application is a continuation application filed under 37 C.F.R. § 1.53(b). Claims 34-52 remain pending after amendment of the claims in this response.

The added claim terms come from the original specification as filed. The following terms can be found in the specification throughout, for example on the page and line numbers cited:

"reservoir of satellite cells"

p. 9 line 27-28

"needle probings, or by sonication"

p. 9 lines 30-31,